

REMARKS

Claims 7 to 31 are all the claims pending in the application, prior to the present Amendment.

Applicants have canceled the non-elected claims 27-31.

The Examiner objects to the disclosure by stating that reference to PCT/JP03/15644 should appear in the first paragraph of the specification.

The rules of the USPTO do not require reference to the International PCT application in the first paragraph of the specification or anywhere else. See MPEP § 1893.03(C)III, page 1800-207, 8th Ed., August 2007 Revision, which specifically states that “it is not necessary for the applicant to amend the first sentence(s) of the specification to reference the international application number” Nevertheless, applicants have amended the specification to include a reference to the international application.

The Examiner states that applicants cannot claim foreign priority based on Japanese Patent Application 2002-355305 filed on December 6, 2002, because the international application was filed more than twelve months after this date.

Applicants disagree with the Examiner’s assertion. December 6, 2003 was a Saturday. Under the appropriate statute, it is proper to file the international application on the next business day, which was December 8, 2003, which was the date that the international application was, in fact, filed. Accordingly, applicants’ claim for priority is proper.

Claims 10, 12, 14, 23 and 26 have been rejected under the first paragraph of 35 U.S.C. § 112 as based on a non-enabling disclosure.

The Examiner states that at least some of the claims require one of ordinary skill in the art to have access to a specific microorganism. The Examiner states that it is not clear from the specification or record that the microorganism is readily available to the public.

The Examiner states that if a deposit has been made under the terms of the Budapest Treaty, then an affidavit or declaration by applicants or a statement by an attorney of record over his/her signature and registration number stating that the deposit has been made under the Budapest Treaty and that all restrictions imposed by the depositor on availability to the public of the deposited material will be irrevocably removed upon issuance of the patent would satisfy the deposit requirement.

Claims 10, 12, 14, 23 and 26 list six specific microorganisms. The present specification states, at page 24, that these six specific microorganisms have been deposited at the International Patent Organism Depository of the National Institute of Advanced Industrial Science Technology, and that five of them have been internationally deposited under the Budapest Treaty. Applicants enclose copies of receipts from the International Depository Authority and translations thereof for these five microorganisms.

Applicants hereby agree that all restrictions imposed by the depositor on availability to the public of the following five deposited materials will be irrevocably removed upon allowance and issuance of the above identified application into a United States Patent:

Escherichia coli HB101 (pNTDRG1)(FERM BP-08458),

Escherichia coli HB101 (pTSBG1)(FERM BP-7119),

Escherichia coli HB101 (pNTRS)(FERM BP-08545)

Escherichia coli HB101 (pNTDRG1)(FERM BP-08458),

Escherichia coli HB101 (pTSBG1)(FERM BP-7119)

which are designated in the specification of the above-identified application and were deposited under the terms of the Budapest Treaty.

With respect to the remaining microorganism, namely, *Escherichia coli* HB101 (pNTSGG1) (Accession No: FERM P-18449), applicants have amended claims 10 and 23, which are the only claims that recited this microorganism, to delete this microorganism.

In view of the above, applicants request withdrawal of this rejection.

Claims 13 and 16 have been rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent 4,734,367 to Leuenberger et al.

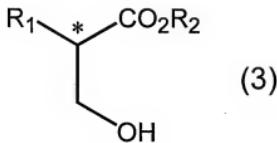
In response, applicants have canceled claim 13 and have amended claim 16 to depend from claims 14 and 15 which are discussed in detail below.

Claims 1-16 have been rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent 4,734,376 to Leuenberger et al.

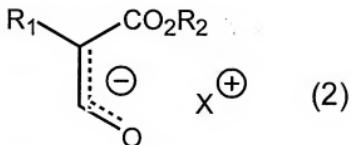
As mentioned above, claim 13 has been canceled, thus leaving claims 7-12 and 14-16 as being subject to this rejection.

Applicants submit that Leuenberger et al do not disclose or render obvious the subject matter of claims 7-12 and, accordingly, request withdrawal of this rejection.

The present invention as set forth in claim 7, as amended above, and claims 8-12 dependent thereon, is directed to a process for producing an optically active 3-hydroxypropionic ester derivative represented by the general formula (3):



by subjecting a 2-formylacetic ester derivative represented by the general formula (2):



to the action of an enzymatic source capable of stereoselectively reducing the formyl group of formula (2).

Claim 7 recites that the R configuration of the derivative represented by the formula (3) is produced by using an enzymatic source which is derived from a microorganism of 22 named genera and capable of R-selectively reducing the formyl group of the derivative represented by the formula (2). Applicants have amended claims 7 and 9 to delete the genus *Cryptococcus*.

Claim 7 also recites that the S-configuration of the derivative represented by the formula (3) is produced by using an enzymatic source which is derived from a microorganism of 9 named genera and capable of S-selectively reducing the formyl group of the derivative represented by the formula (2). One of the 9 named genera is *Rhodotorula*.

Leuenberger et al disclose a process to produce alpha-substituted derivatives of 3-hydroxypropionic acid by fermentatively reducing a compound of general formula II which satisfies formula (2) of the present claims.

Leuenberger et al disclose that microorganisms, preferably yeast, fungi or bacteria, can be employed. Leuenberger et al specifically disclose that yeast of the genera *Cryptococcus* and *Rhodotorula* can be employed. As mentioned above, applicants have deleted *Cryptococcus* from claims 7 and 9.

With respect to *Rhodotorula*, Example 2 of Leuenberger et al shows that (R)-(-)-3-hydroxyisobutyrate was obtained by using *Rhodotorula glutinis* NRRL Y-15726. But Leuenberger et al neither disclose nor suggest that microorganisms belonging to *Rhodotorula* can catalyze S-specific reduction.

On the other hand, claims 7 and 11 recite that *Rhodotorula* is used as a microorganism for producing compound (3) having an S-configuration, not an R-configuration. Applicants submit that Leuenberger et al do not disclose or suggest that *Rhodotorula* is capable of S-selectivity reducing a formyl group and do not disclose or suggest employing *Rhodotorula* to produce a compound having an S-configuration.

In view of the above, applicants submit that claims 7-12 are patentable over Leuenberger et al.

With respect to claims 14 and 15, these claims recite specific recombinant or transformed microorganisms. Applicants have amended claims 14 and 15 to place them in independent form. Claims 14 and 15 do not include all the recitations of claim 13. In addition, applicants have amended claim 16 to depend from claims 14 and 15. Leuenberger et al do not disclose or suggest the use of transformed microorganisms. The Examiner does not provide any reason why it would have been obvious to use such transformed microorganisms.

In view of the above, applicants submit that claims 14-16 are patentable over Leuenberger et al.

In view of the above, applicants submit that claims 7-12 and 14-16 are patentable over Leuenberger et al and, accordingly, request withdrawal of this rejection.

The Examiner sets forth a “Request for Information” under 37 C.F.R. § 1.105.

In particular, the Examiner states that she has failed to find in the prior art “the chemical reaction set forth in claim 17 where an acetic ester derivative of formula (1) is reacted with a base and a formic ester thereby converting the acetic ester derivative into a 2-formylacetic ester derivative of formula (2).” The Examiner states that this is the first step of claim 17.

The Examiner states that applicants should supply references which teach this reaction or make a statement on the record that the inventors believe themselves to be the first inventors of this particular chemical reaction.

In response, applicants refer the Examiner to EP 212859 A2, which was submitted with the Information Disclosure Statement of May 27, 2005 and is of record in the present application. EP ‘859 discloses the formation of compound (11b), which exists in equilibrium with compound (11a), by treating compound (IV) with a base and a formate ester. This reaction in EP ‘859 is the same as the reaction in claim 17 “where an acetic ester derivative of formula (1) is reacted with a base and a formic ester thereby converting the acetic ester derivative into a 2-formylacetic ester derivative of formula (2).”

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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